REMARKS

Claims 1, 2, 5-9, 11, 12, 14, 15, 17-23, 26-29, 39-42 and 44 are pending in this application and Applicants are traversing the rejections. Applicants believe that no new matter has been added by this response.

Response to 35 U.S.C. §103(a) Rejection

The Examiner rejected all the claims under multiple 35 U.S.C §103(a) rejections. Including independent claims 1, 9, 15, and 22 under 35 U.S.C §103(a) as being unpatentable over Krasner in view of Mendelovicz and independent claim 39 under 35 U.S.C. §103(a) as being unpatentable over Krasner and in view of Mendelovicz and in further view of Warren et al. Applicants reiterate their previous remarks pertaining to the mixer and sampler bing independently corrected for frequency shift from the prior office action response herein. Applicants have previously amended the independent claims to recite that the mixer and sampler may be independently corrected for frequency shift as explained in the specification (*see* page 9, lines 14-17 of the specification). None of the cited references used in the 35 U.S.C. §103(a) rejections describe or discuss such independently frequency shift correction. Thus, independent claims 1, 9, 15, 22, and 39 are in condition for allowance along with the claims that depend from the independent claims.

The Examiner has indicated on page 2, of the Final office action mailed July 9, 2008, that:

> "...it is the understanding of the Examiner that simply because the operations are performed in software in

the same microcontroller, does not make the operations of correction of frequency shift and Doppler shift dependent. Krasner ... discloses independent operations for correction of the frequency shift and the Doppler shift. Krasner... discloses the frequency translation circuit (mixer) is corrected (compensated) for Doppler and LO frequency offsets/shifts (see column 5, lines 30-50). Krasner also discloses the sampling is compensated for Doppler sampling offset (Sift) by use of a digital resampler using a Doppler Sample Time Correction command (see column 5, lines 51-65). Therefore, it is the understanding of the Examiner that although the operations are performed in the microcontroller by software, there would need to be different/independent software routines to correct frequency shift at the mixer and Doppler offset at the sampler."

But, column 5, lines 30-50 and column 5, 51-65 of the Krasner patent recites:

"The acquisition circuit 400 of FIG. 4 is a single channel acquisition similar to that of FIG. 2, but which contains additional processing elements. These additional elements include digital frequency translation circuit 404, compensating for Doppler and LO frequency offsets, digital resampler 406 which compensates for Doppler and LO sampling rate offsets, and predetection loop filter 410.

With reference to FIG. 4, the process of signal tracking and data demodulation according to one aspect of the present invention will be described. The digital frequency translation 404 circuit simply multiplies the I/Q input signal 402 by an exponential of the form exp(-j2.pi.nf.sub.d T.sub.s), where f.sub.d is the combined Doppler and LO frequency offset, T.sub.s is the sample period and n is the running time index. This compensation is required so that the residual signal frequency error is much less than the PN frame rate (1 kHz). Otherwise, the effect of frequency offset would be to reduce the amplitude of the matched filter 408 output signal by a quantity equal to .vertline.sin(.pi.f.sub.d T.sub.f)/.pi.f.sub.d T.sub.s.vertline.. For example, if f.sub.d =1/T.sub.s, then the amplitude of the signal out of the matched filter would be zero.

The Doppler sample rate correction signal 430 is input to the digital resampler 406, which corrects small errors that result from the received I/Q input signal 402

> "stretching" or "contracting" in time, as a result of Doppler shift. For example a Doppler error of 2 .mu.sec/sec (which is well within the observed Doppler of GPS satellites) represents a times shift of two chips over a period of second. Such a time shift will limit the number of loop integrations that can be performed since the detection spikes at later time periods will not line up with those at earlier time periods, and hence processing gain will level out (or actually be reduced) in relation to increased integration time. In addition, the correlation peak out of the loop integrator will broaden, contributing to errors in measured time-of-arrival (or "pseudorange")."

Using the recitation above and examining figure 4 of the Krasner patent, it is shown that the micro-controller 428 receives information from the Reg. Bank 418 and the "compare to Threshold" box 426 as inputs. It has access to that data to when generating the Load GPS PN Coefficients, Doppler Sample Time Correction, and Doppler/LO Correction. The complex mixer and the signal sampler are not independently corrected for frequency shift and Doppler shift. Both corrections occur prior to the Micro-controller receiving any data (*See* FIG. 4 of the Krasner patent). Thus, the Krasner patent when combined with the Medelovicz patent and with the Warren et al. patent, fail to teach or describe all of Applicants' claim limitations.

Therefore, independent claims 1, 9, 15, 22, and 39 are in condition for allowance along with the rest of the claims that depend from the independent claims.

Conclusion

In view of the foregoing discussion and amendments, Applicants respectfully submit that claims 1, 2, 5-9, 11, 12, 14, 15, 17-23, 26-29, 39-42 and 44 as presented are in a condition for allowance, for which action is earnestly solicited.

Respectfully submitted,
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